


Nascent Malunion of an Isolated Intraarticular Fracture of the Ulnar Head

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Abstract

Background Isolated fractures of the ulnar head are rare. Only few cases have been reported in literature.

Case Description We report a case of a 16-year-old student who was treated for an ulnar styloid fracture conservatively. An associated displaced intraarticular fracture of the ulnar head has been overlooked. He presented late in our clinic with a symptomatic nascent malunion of the ulnar head fracture. A corrective osteotomy by a palmar approach was performed. Fixation by screws was used with an excellent result at 7-year follow-up.

Literature Review The rare cases of isolated ulnar head fractures reported in literature were treated by open reduction and internal fixation only in case of fracture dislocation.

Keywords

- ulnar head fracture
- nascent malunion
- osteotomy

Clinical Relevance The authors highlight the fact that even a nascent malunion of an isolated intraarticular fracture of the ulnar head may be treated successfully by open reduction and internal fixation.

Intraarticular fractures of the ulnar head are often associated with fractures of the distal radius.¹ Isolated ulnar head fractures are rare.^{2–4} We report a case of a nascent malunion of an isolated displaced intraarticular ulnar head fracture treated by a corrective osteotomy.

Case Report

A 16-year-old student presented 6 weeks following an injury of his left hand and wrist. He had undergone a 4-week conservative treatment for an ulnar styloid fracture and a Bennett type fracture of the first metacarpal base in another institution. The treatment consisted in an immobilization of his wrist in an above elbow cast with inclusion of his thumb. Given persistent painful reduction of the wrist movement, he was seen in our clinic. Examination demonstrated an important and painful reduction in the wrist motion especially in pronation, supination, and flexion (►Fig. 1A–D). Radiographs demonstrated a palmar dislocated intraarticular fracture of the ulnar head (►Fig. 2A–B). A computed

tomography scan confirmed the partially consolidated fracture of the ulnar head with palmar dislocation of the distal fragment (►Fig. 3A–C). The ulnar styloid fracture was healed in a correct position. A corrective osteotomy of the ulnar head was performed. A curved skin incision was fashioned over the ulnar–palmar side of the wrist. The tendon of the flexor carpi ulnaris muscle and the ulnar neurovascular bundle were isolated and retracted ulnarly. The pronator muscle was detached from ulnar to radial and a longitudinal capsulotomy was performed. The triangular fibrocartilage was intact. The fracture site was identified. With very thin chisels and knives, the “osteotomy” was performed directly into the fracture line and the fracture fragment was mobilized. Reduction and fixation with two 1.7 mm screws (Leibinger microimplants Stryker, Formello, Italy) were performed. The heads of the screws were buried in the subchondral bone (►Fig. 4A–B). During passive pro- and supination no conflict was observed between the screw heads and the triangular fibrocartilage. The pronator muscle was reinserted with PDS 4–0. The patient was placed in a

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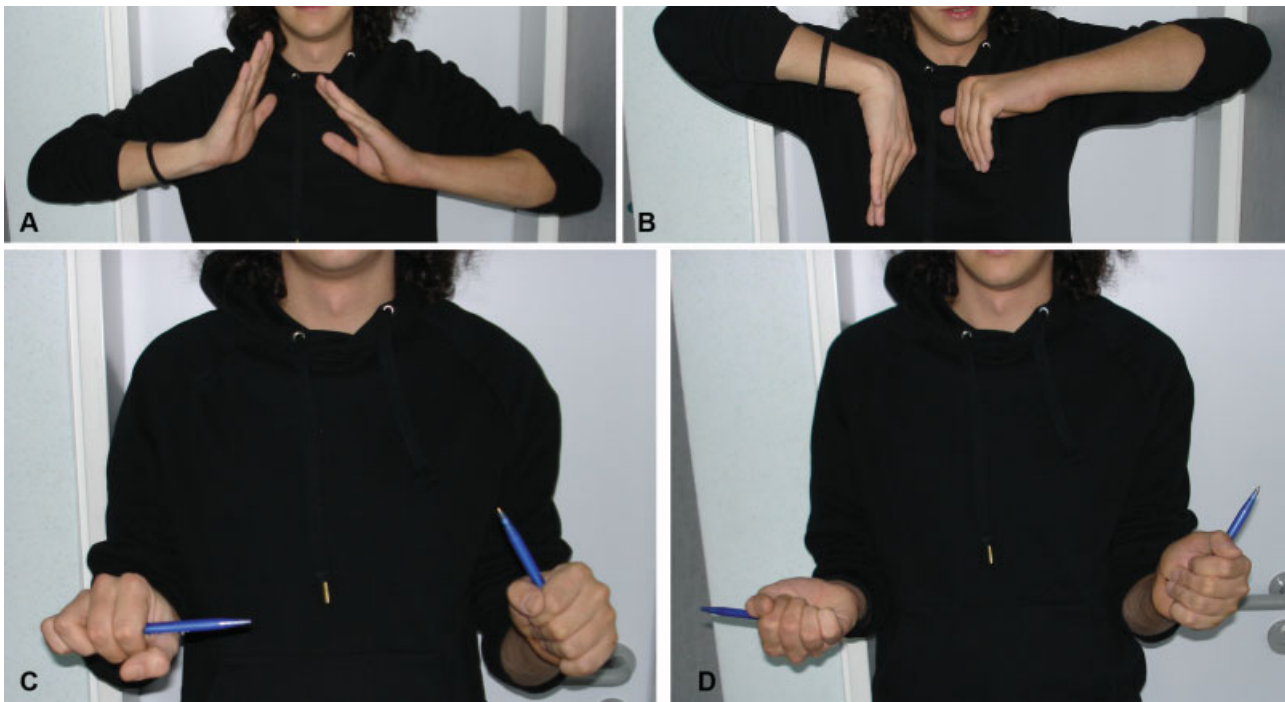


Fig. 1 Preoperative photographs show a limited extension of the left wrist (A) and a severe reduction in wrist flexion (B), pronation (C), and supination (D).



Fig. 2 Preoperative radiographs demonstrate a double contour of the ulnar head on the anteroposterior view (A). Arrowheads indicate the palmar dislocated fragment on the lateral view (B).

removable elbow cast and rehabilitation was started in the second postoperative day.

At 7-year follow-up, the patient had only occasional pain, a nearly complete range of movement (–Fig. 5A–D), a Krimmer score of 95, and a Disabilities of the Arm, Shoulder and Hand (DASH) Score of 2.6. He complained of only difficulties when playing the guitar. Radiographs did not show arthritic changes of the distal radioulnar joint (–Fig. 6A–B).

Discussion

Isolated fractures of the ulnar head are rare and the literature is sparse. Isolated fractures have been classified into two types for treatment: (1) head fracture alone and (2) head fracture with extraarticular involvement like ulnar styloid fractures.¹ Type 1 fractures may be treated by open reduction and internal fixation in case of intraarticular step off and

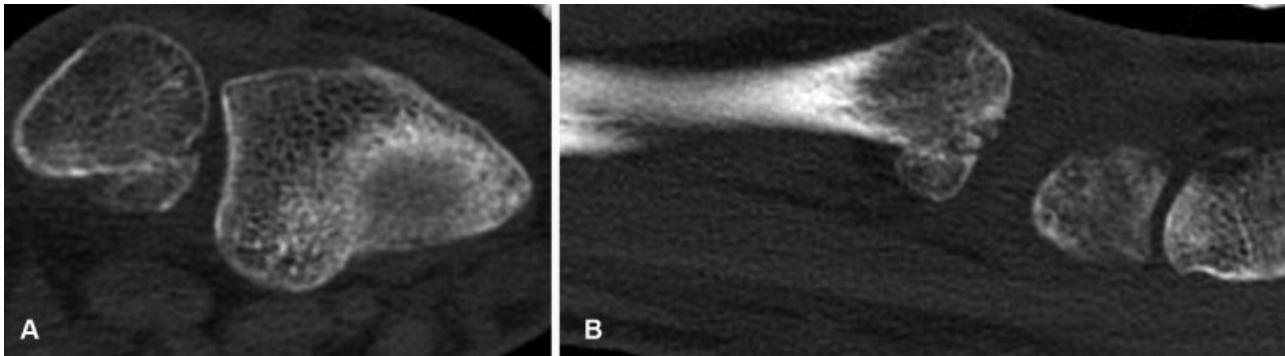


Fig. 3 Preoperative computed tomography scan shows the partially consolidated fragment in a frontal view (A) and sagittal view (B).

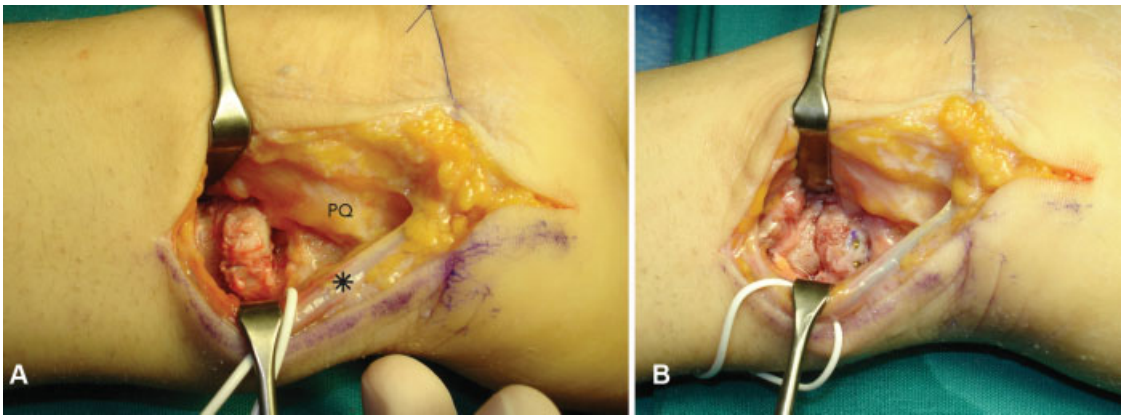


Fig. 4 (A) Intraoperative photographs show the malunited palmar fragment of the ulnar head. PQ indicates the pronator quadratus muscle, and the asterisk indicates the ulnar neurovascular bundle. (B) The ulnar head after reduction and fixation of the palmar fragment with two screws.



Fig. 5 Functional result after 7 years: (A) Extension, (B) flexion, (C) pronation, and (D) supination.



Fig. 6 No arthritic changes are seen on radiographs at final follow-up. (A) Anteroposterior view and (B) lateral view.

instability. Treatment options are headless compression screws,^{2,3} pins,⁴ or locking plates.⁵ Early postoperative mobilization depends on the stability of the fracture fixation. Very good results were obtained. Three cases of type 2 fractures have been reported. In one case, the intraarticular fracture was fixed by a headless compression screw and the styloid fracture was addressed with tension band wires.⁴ An internal locked plate was used in two cases.⁵ Excellent results were obtained.

Our case showed that open reduction and internal fixation are worthwhile even in a nascent malunion of an isolated displaced intraarticular fracture of the ulnar head.

Note

The work was performed at the Tappeiner Hospital of Meran.

Conflict of Interest

None declared.

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